

PATENT COOPERATION TREATY

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Assistant Commissioner for Patents
United States Patent and Trademark
Office
Box PCT
Washington, D.C. 20231
ETATS-UNIS D'AMERIQUE

in its capacity as elected Office

Date of mailing (day/month/year) 12 October 2000 (12.10.00)	
International application No. PCT/US00/02423	Applicant's or agent's file reference MCA-437 PC
International filing date (day/month/year) 28 January 2000 (28.01.00)	Priority date (day/month/year) 29 January 1999 (29.01.99)
Applicant CHENG, Kwok-Shun et al	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:

16 August 2000 (16.08.00)

☐ in a notice effecting later election filed with the International Bureau on:
2. The election ☒ was
☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35	Authorized officer S. De Michiel Telephone No.: (41-22) 338.83.38
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From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

RECEIVED

11 April 2001

Henkel, Feiler & Hänzel PCT

To:

HENKEL, FEILER & HÄNZEL
Möhlstrasse 37
D-81675 München
ALLEMAGNE

NOTIFICATION OF TRANSMITTAL OF
THE INTERNATIONAL PRELIMINARY
EXAMINATION REPORT
(PCT Rule 71.1)

Date of mailing
(day/month/year) 10.04.2001

Applicant's or agent's file reference
MCA-437 PC

IMPORTANT NOTIFICATION

International application No.
PCT/US00/02423

International filing date (day/month/year)
28/01/2000

Priority date (day/month/year)
29/01/1999

Applicant
MILLIPORE CORPORATION et al.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

4. REMINDER

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

Name and mailing address of the IPEA/

 European Patent Office
D-80298 Munich
Tel. +49 89 2399 - 0 Tx: 523656 epmu d
Fax: +49 89 2399 - 4465

Authorized officer

Ipinazar, P

Tel. +49 89 2399-8131



PCT

RECD 12 APR 2001

WIPO PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

14

Applicant's or agent's file reference MCA-437 PC	<div style="display: flex; justify-content: space-between;"> <div>FOR FURTHER ACTION</div> <div>See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)</div> </div>	
International application No. PCT/US00/02423	International filing date (day/month/year) 28/01/2000	Priority date (day/month/year) 29/01/1999
International Patent Classification (IPC) or national classification and IPC B01D29/11		
Applicant MILLIPORE CORPORATION et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 6 sheets, including this cover sheet.

☐ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☒ Certain defects in the international application
- VIII ☒ Certain observations on the international application

Date of submission of the demand 16/08/2000	Date of completion of this report 10.04.2001
Name and mailing address of the international preliminary examining authority: <div style="display: flex; align-items: center;"> <div> European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465 </div> </div>	Authorized officer Luethe, H Telephone No. +49 89 2399 7519



**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/US00/02423

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, pages:

1-21 as originally filed

Claims, No.:

1-32 as originally filed

Drawings, sheets:

1/5-5/5 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/US00/02423

☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	4,11
	No:	Claims	1-3,5-10,12-32

Inventive step (IS)	Yes:	Claims	
	No:	Claims	1-32

Industrial applicability (IA)	Yes:	Claims	1-32
	No:	Claims	

2. Citations and explanations
see separate sheet

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:
see separate sheet

VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:
see separate sheet

Re Item VIII

Certain observations on the international application

1. The application does not meet the requirements of Article 6 PCT, because independent product claims 1-4, 11, 13, 23 and 32 are not clear.
 - 1.1. Although the groups of claims 1-4, 13, 23 and 32 have been drafted as separate independent claims, they appear to relate within each single group effectively to the same subject-matter and to differ from each other only with regard to the definition of the subject-matter for which protection is sought or in respect of the terminology used for the features of that subject-matter. The aforementioned claims therefore lack conciseness.

Moreover, lack of clarity of the claims as a whole arises, since the plurality of independent claims makes it difficult, if not impossible, to determine the matter for which protection is sought, and places an undue burden on others seeking to establish the extent of the protection.

In this case **one** independent claim is appropriate.
 - 1.2. The present wording of claim 1 "...so as to form a liquid seal..." is open to interpretation and suggests that the seal itself is liquid. The intended meaning seems to be '...so as to form a liquid tight seal...' (cf. present claims 13, 23; page 15, lines 2 and 28-29)..
 - 1.3. It is not clear how "a membrane formed of one or more fibers wound around an axis" (emphasis by the examining division) can "form a depth filter" (cf. claim 4, lines 1 and 2) since any depth filter requires a filtration layer of a certain appropriate thickness.

The same objection applies to claim 11, which presently refers to claim 1. Hence, claims 4 and 11 are not clear.

In any case, it seems that the subject-matter of dependent claim 11 and independent claim 4 is the same and, hence, claim 4 seems to be obsolete.

Re Item V

Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step

or industrial applicability; citations and explanations supporting such statement

1. Reference is made to the following documents:

D1: US-A-5 158 680 (T.KAWAI ET AL) 27 October 1992 (1992-10-27) cited in the application

D2: EP-A-0 217 482 (HR TEXTRON INC) 8 April 1987 (1987-04-08)

D3: US-A-5 855 783 (A.C.SHUCOSKY ET AL) 5 January 1999 (1999-01-05)

2. In so far as what can be understood from the claims:

The present application does not satisfy the criterion set forth in Article 33 (2) PCT because the subject-matter of claims 1-3, 5-10 and 12-32 is not new as defined in the regulations (Rule 64 (1)-(3) PCT).

2.1. Document D1 discloses a "polytetrafluoroethylene resin porous membrane suitable for use in the condensation and separation of substances by, for example, ultrafiltration, micro filtration and so forth, as well as to a separator making use of this porous membrane and methods of producing the porous membrane and the separator" (cf. col. 1, lines 13-19).

The perfluorinated thermoplastic resin used is a "tetrafluoroethylene homopolymer or a copolymer which contains not less than 50 mol%, preferably not less than 60 mol% and more preferably not less than 80 mol% of tetrafluoroethylene in terms of monomer unit, e.g., a tetrafluoroethylene-perfluoroalkylvinylether copolymer, a tetrafluoroethylene-hexafluoropropylene copolymer, a tetrafluoroethylene-ethylene copolymer and so forth, or their mixture" (cf. col. 3, lines 44-52).

Both the membranes and the seals are formed of said resin (cf. col. 8, lines 8-48; example 5, claims 1-6).

The membranes of D1 may have the form of hollow fibres to be incorporated in separators (cf. col. 9, lines 16-62; fig. 22 and 23) or as a sheet-type membrane.

"In case of a sheet-type membrane, the membrane was incorporated in a commercially available cartridge" (cf. col. 10, lines 57-58).

Thus, as D1 discloses all the technical features defined by the subject-matter of claims 1-3, 5-10 and 12-32 of the present application, said subject-matter is not new in respect of prior art as defined in the regulations (Rule 64(1)-(3) PCT).

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/US00/02423

- 2.2. In the unlikely case that the person skilled in the art would have any residual doubt if the cartridges of D1 can be shaped as detailed in present independent claims 13, 23 and 32, this doubt would be removed by the teachings of any of D2 or D3 (cf. the figures).
- 2.3. Independently from the above the applicant's attention is further drawn to the fact that the teachings both D2 and D3, taken independently from each other, form a novelty bar for present claims 1, 2, 13 and 23.

Re Item VII

Certain defects in the international application

Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in the documents D2 and D3 is not mentioned in the description, nor is this document identified therein.

PATENT COOPERATION TREA

From the INTERNATIONAL SEARCHING AUTHORITY

PCT

NOTIFICATION OF TRANSMITTAL OF
THE INTERNATIONAL SEARCH REPORT
OR THE DECLARATION

(PCT Rule 44.1)

To:
MILLIPORE CORPORATION
Attn. Hubbard, John Dana.
80 Ashby Road
Bedford, Massachusetts 01730
UNITED STATES OF AMERICA

Date of mailing (day/month/year)	19/07/2000
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Applicant's or agent's file reference MCA-437 PC	FOR FURTHER ACTION See paragraphs 1 and 4 below
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International application No. PCT/US 00/ 02423	International filing date (day/month/year) 28/01/2000
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Applicant

MILLIPORE CORPORATION et al.

1. ☒ The applicant is hereby notified that the International Search Report has been established and is transmitted herewith.

Filing of amendments and statement under Article 19:

The applicant is entitled, if he so wishes, to amend the claims of the International Application (see Rule 46):

When? The time limit for filing such amendments is normally 2 months from the date of transmittal of the International Search Report; however, for more details, see the notes on the accompanying sheet.

Where? Directly to the International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland
Facsimile No.: (41-22) 740.14.35

For more detailed instructions, see the notes on the accompanying sheet.

2. ☐ The applicant is hereby notified that no International Search Report will be established and that the declaration under Article 17(2)(a) to that effect is transmitted herewith.

3. ☐ **With regard to the protest** against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:

☐ the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.

☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

4. **Further action(s):** The applicant is reminded of the following:

Shortly after **18 months** from the priority date, the international application will be published by the International Bureau.
If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau as provided in Rules 90bis.1 and 90bis.3, respectively, before the completion of the technical preparations for international publication.

Within **19 months** from the priority date, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase until 30 months from the priority date (in some Offices even later).

Within **20 months** from the priority date, the applicant must perform the prescribed acts for entry into the national phase before all designated Offices which have not been elected in the demand or in a later election within 19 months from the priority date or could not be elected because they are not bound by Chapter II.

Name and mailing address of the International Searching Authority



European Patent Office, P.B. 5818 Patentlaan 2
NL-2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Chantal Meyer



These Notes are intended to give the basic instructions concerning the filing of amendments under article 19. The Notes are based on the requirements of the Patent Cooperation Treaty, the Regulations and the Administrative Instructions under that Treaty. In case of discrepancy between these Notes and those requirements, the latter are applicable. For more detailed information, see also the PCT Applicant's Guide, a publication of WIPO.

In these Notes, "Article", "Rule", and "Section" refer to the provisions of the PCT, the PCT Regulations and the PCT Administrative Instructions respectively.

INSTRUCTIONS CONCERNING AMENDMENTS UNDER ARTICLE 19

The applicant has, after having received the international search report, one opportunity to amend the claims of the international application. It should however be emphasized that, since all parts of the international application (claims, description and drawings) may be amended during the international preliminary examination procedure, there is usually no need to file amendments of the claims under Article 19 except where, e.g. the applicant wants the latter to be published for the purposes of provisional protection or has another reason for amending the claims before international publication. Furthermore, it should be emphasized that provisional protection is available in some States only.

What parts of the international application may be amended?

Under Article 19, only the claims may be amended.

During the international phase, the claims may also be amended (or further amended) under Article 34 before the International Preliminary Examining Authority. The description and drawings may only be amended under Article 34 before the International Examining Authority.

Upon entry into the national phase, all parts of the international application may be amended under Article 28 or, where applicable, Article 41.

When?

Within 2 months from the date of transmittal of the international search report or 16 months from the priority date, whichever time limit expires later. It should be noted, however, that the amendments will be considered as having been received on time if they are received by the International Bureau after the expiration of the applicable time limit but before the completion of the technical preparations for international publication (Rule 46.1).

Where not to file the amendments?

The amendments may only be filed with the International Bureau and not with the receiving Office or the International Searching Authority (Rule 46.2).

Where a demand for international preliminary examination has been/is filed, see below.

How?

Either by cancelling one or more entire claims, by adding one or more new claims or by amending the text of one or more of the claims as filed.

A replacement sheet must be submitted for each sheet of the claims which, on account of an amendment or amendments, differs from the sheet originally filed.

All the claims appearing on a replacement sheet must be numbered in Arabic numerals. Where a claim is cancelled, no renumbering of the other claims is required. In all cases where claims are renumbered, they must be renumbered consecutively (Administrative Instructions, Section 205(b)).

The amendments must be made in the language in which the international application is to be published.

What documents must/may accompany the amendments?

Letter (Section 205(b)):

The amendments must be submitted with a letter.

The letter will not be published with the international application and the amended claims. It should not be confused with the "Statement under Article 19(1)" (see below, under "Statement under Article 19(1)").

The letter must be in English or French, at the choice of the applicant. However, if the language of the international application is English, the letter must be in English; if the language of the international application is French, the letter must be in French.

The letter must indicate the differences between the claims as filed and the claims as amended. It must, in particular, indicate, in connection with each claim appearing in the international application (it being understood that identical indications concerning several claims may be grouped), whether

- (i) the claim is unchanged;
- (ii) the claim is cancelled;
- (iii) the claim is new;
- (iv) the claim replaces one or more claims as filed;
- (v) the claim is the result of the division of a claim as filed.

The following examples illustrate the manner in which amendments must be explained in the accompanying letter:

1. [Where originally there were 48 claims and after amendment of some claims there are 51]:
"Claims 1 to 29, 31, 32, 34, 35, 37 to 48 replaced by amended claims bearing the same numbers; claims 30, 33 and 36 unchanged; new claims 49 to 51 added."
2. [Where originally there were 15 claims and after amendment of all claims there are 11]:
"Claims 1 to 15 replaced by amended claims 1 to 11."
3. [Where originally there were 14 claims and the amendments consist in cancelling some claims and in adding new claims]:
"Claims 1 to 6 and 14 unchanged; claims 7 to 13 cancelled; new claims 15, 16 and 17 added." or
"Claims 7 to 13 cancelled; new claims 15, 16 and 17 added; all other claims unchanged."
4. [Where various kinds of amendments are made]:
"Claims 1-10 unchanged; claims 11 to 13, 18 and 19 cancelled; claims 14, 15 and 16 replaced by amended claim 14; claim 17 subdivided into amended claims 15, 16 and 17; new claims 20 and 21 added."

"Statement under article 19(1)" (Rule 46.4)

The amendments may be accompanied by a statement explaining the amendments and indicating any impact that such amendments might have on the description and the drawings (which cannot be amended under Article 19(1)).

The statement will be published with the international application and the amended claims.

It must be in the language in which the international application is to be published.

It must be brief, not exceeding 500 words if in English or if translated into English.

It should not be confused with and does not replace the letter indicating the differences between the claims as filed and as amended. It must be filed on a separate sheet and must be identified as such by a heading, preferably by using the words "Statement under Article 19(1)".

It may not contain any disparaging comments on the international search report or the relevance of citations contained in that report. Reference to citations, relevant to a given claim, contained in the international search report may be made only in connection with an amendment of that claim.

Consequence if a demand for international preliminary examination has already been filed

If, at the time of filing any amendments under Article 19, a demand for international preliminary examination has already been submitted, the applicant must preferably, at the same time of filing the amendments with the International Bureau, also file a copy of such amendments with the International Preliminary Examining Authority (see Rule 62.2(a), first sentence).

Consequence with regard to translation of the international application for entry into the national phase

The applicant's attention is drawn to the fact that, where upon entry into the national phase, a translation of the claims as amended under Article 19 may have to be furnished to the designated/elected Offices, instead of, or in addition to, the translation of the claims as filed.

For further details on the requirements of each designated/elected Office, see Volume II of the PCT Applicant's Guide.

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference MCA-437 PC	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. PCT/US 00/ 02423	International filing date (day/month/year) 28/01/2000	(Earliest) Priority Date (day/month/year) 29/01/1999
Applicant MILLIPORE CORPORATION et al.		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 3 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of invention is lacking** (see Box II).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.

☐ as suggested by the applicant.

☒ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

1
☐ None of the figures.

INTERNATIONAL SEARCH REPORT

International Application No

CT/US 00/02423

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 B01D29/11 B01D63/02 B01D63/06 B01D71/36

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 B01D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

WPI Data, PAJ, EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 175 432 A (HR TEXTRON INC) 26 March 1986 (1986-03-26) page 2, line 5-29 -page 3, line 5-19; claims; figures ---	1,2,4-7, 9,10, 13-19, 23-32
X	EP 0 217 482 A (HR TEXTRON INC) 8 April 1987 (1987-04-08) claims; figures ---	1,2,4-7, 9,10, 13-19, 23-32
A	DE 34 44 387 A (HR TEXTRON INC) 11 July 1985 (1985-07-11) claims ---	1,2,4-7, 9,10, 13-19, 23-32

-/--



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

10 July 2000

Date of mailing of the international search report

19/07/2000

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Cordero Alvarez, M

INTERNATIONAL SEARCH REPORT

International Application No

T/US 00/02423

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 855 783 A (A.C.SHUCOSKY ET AL) 5 January 1999 (1999-01-05) column 2, line 54,55 -column 5, line 39-45; claims ---	1-32
A	US 5 154 827 A (CH.-J.ASHELIN ET AL) 13 October 1992 (1992-10-13) cited in the application claim 6 ---	1,13,23, 32
A	US 5 158 680 A (T.KAWAI ET AL) 27 October 1992 (1992-10-27) cited in the application claims ---	5-7,18, 19,30,31
A	US 4 906 377 A (L.Y.YEN ET AL) 6 March 1990 (1990-03-06) cited in the application claims ---	5-7,18, 19,30,31
A	US 5 762 789 A (G. DE LOS REYES ET AL) 9 June 1998 (1998-06-09) cited in the application claims; figures -----	1,13

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

T/US 00/02423

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 175432 A	26-03-1986	AT 53775 T AU 576836 B AU 4043385 A DE 3577404 D JP 61068110 A	15-06-1990 08-09-1988 20-03-1986 07-06-1990 08-04-1986
EP 217482 A	08-04-1987	AU 592973 B AU 5490186 A JP 62027019 A	01-02-1990 22-01-1987 05-02-1987
DE 3444387 A	11-07-1985	GB 2152399 A JP 60147206 A	07-08-1985 03-08-1985
US 5855783 A	05-01-1999	AU 3131293 A CA 2108901 A DE 69211018 D DE 69211018 T EP 0630281 A WO 9309862 A	15-06-1993 16-05-1993 27-06-1996 02-10-1996 28-12-1994 27-05-1993
US 5154827 A	13-10-1992	AU 7214691 A EP 0513131 A WO 9110495 A	05-08-1991 19-11-1992 25-07-1991
US 5158680 A	27-10-1992	JP 1034407 A JP 1880117 C JP 4068010 B JP 1034408 A JP 1872522 C JP 4068011 B JP 1129043 A JP 1956346 C JP 6070155 B DE 3878899 A DE 3878899 T EP 0343247 A WO 8900879 A US 5286324 A	03-02-1989 21-10-1994 30-10-1992 03-02-1989 26-09-1994 30-10-1992 22-05-1989 28-07-1995 07-09-1994 08-04-1993 22-07-1993 29-11-1989 09-02-1989 15-02-1994
US 4906377 A	06-03-1990	US 4902456 A DE 68923319 D DE 68923319 T EP 0340732 A JP 2548092 B JP 8034874 A JP 2208329 A JP 2573524 B US 4990294 A US 5032274 A	20-02-1990 10-08-1995 04-01-1996 08-11-1989 30-10-1996 06-02-1996 17-08-1990 22-01-1997 05-02-1991 16-07-1991
US 5762789 A	09-06-1998	CN 1173389 A DE 815928 T EP 0815928 A JP 10066836 A	18-02-1998 28-05-1998 07-01-1998 10-03-1998